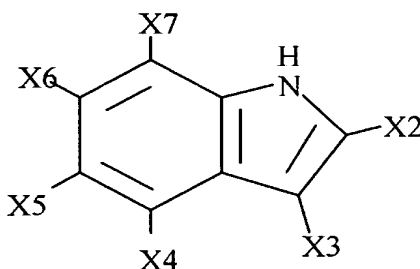


### ABSTRACT OF THE DISCLOSURE

A catalyst system is provided. In one aspect, the catalyst system includes one or more polymerization catalysts and at least one activator. The activator comprises one or more heterocyclic nitrogen-containing ligands coordinated to a Group 13 atom, wherein the activator is a reaction product of one or more alkyl substituted Group 13 atom-containing compounds and one or more heterocyclic nitrogen-containing compounds, the one or more heterocyclic nitrogen-containing ligands represented by:



wherein each substituent X2, X3, X4, X5, X6, and X7 is independently selected from the group consisting of hydrogen, chlorine, fluorine, iodine, and bromine. The catalyst system may be supported or non-supported.